

In re: Won *et al.*  
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### REMARKS

Applicants appreciate the Final Office Action of March 15, 2005. Applicants respectfully submit that the pending claims are patentable over the cited references and any combination thereof for at least the reasons discussed herein. Accordingly, Applicants submit that the pending claims are in condition for allowance, which is respectfully requested in due course.

#### The Pending Claims are Patentable over the Cited References

Claims 1, 2, 5, 7, 8, 10, 14 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 6,274,426 to Lee *et al.* (hereinafter "Lee") and United States Patent No. 5,023,683 to Yamada (hereinafter "Yamada"). See Final Office Action, page 2. As a preliminary note, Applicants submit that the rejection should not be a 102 rejection as the rejection combines Lee and Yamada to provide all of the recitations of the claims. Accordingly, Applicants have responded to the rejection as if Claims 1, 2, 5, 7, 8, 10, 14 and 15 were properly rejected under 35 U.S.C. § 103(a).

Applicants submit that many of the recitations recited in the claims are neither disclosed nor suggested by the cited combination of Lee and Yamada. For example, Claim 1 recites:

An integrated circuit capacitor, comprising:  
an electrically insulating electrode support layer having an opening therein, on an integrated circuit substrate;  
a U-shaped lower electrode in the opening;  
a first capacitor dielectric layer extending on an inner surface and outer portion of the U-shaped lower electrode;  
a second capacitor dielectric layer extending between the outer portion of the U-shaped lower electrode and the first capacitor dielectric between the outer portion of the U-shaped lower electrode and an inner sidewall of the opening and directly contacting a surface of the first capacitor dielectric layer opposite the U-shaped lower electrode; and  
an upper electrode on the first capacitor dielectric layer.

Independent Claim 8 contains similar recitations to the highlighted recitations. Applicants respectfully submit that at least the highlighted recitations are neither disclosed nor suggested by the cited combination for at least the reasons discussed herein.

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The Final Office Action admits that:

Lee et al. do [sic] not show the second capacitor dielectric between the outer portion of the lower electrode and said first capacitor dielectric and directly contacting a surface of the first capacitor dielectric layer opposite the lower electrode.

Final Office Action, page 3. However, the Final Office Action points to Yamada as providing the missing teachings. Applicants respectfully disagree. In particular, the Final Office Action points to Figure 9B of Lee as providing many of the recitations of Claim 1. In particular, the Final Office Action points to silicon oxide layer 10b as teaching the support layer as recited in Claim 1, the polysilicon storage node structure 16 as teaching the U-Shaped lower electrode as recited in Claim 1, the capacitor dielectric layer 17 as teaching the first capacitor dielectric as recited in Claim 1 and the silicon nitride spacer 14c as teaching the second capacitor dielectric as recited in Claim 1. However, as is clear from Figure 9B of Lee, the storage electrode 16 of Lee is not a U-shaped electrode and the silicon nitride spacer 14c does not extend between the outer portion of the U-shaped lower electrode and the first capacitor dielectric and does not directly contact a surface of the first capacitor dielectric layer opposite the U-shaped lower electrode as recited in Claim 1. Thus, nothing in Lee discloses or suggests a U-shaped electrode or a second capacitor dielectric that extends between the outer portion of the U-shaped lower electrode and the first capacitor dielectric and directly contacts a surface of the first capacitor dielectric layer opposite the U-shaped lower electrode as recited in Claim 1.

The Final Office Action points to Figure 1 of Yamada as providing the missing teachings. However, as illustrated in Figure 1C of Yamada, the storage node electrode 10a is an "M" shape storage electrode and the insulating film 9a extends into the arches of the "M". Thus, the insulating film 9a (second capacitor dielectric) is completely shielded from the capacitor insulating film 11a (first capacitor dielectric) by the storage node electrode 10a. In contrast, Claim 1 recites that the second capacitor dielectric layer directly contacts a surface of the first capacitor dielectric opposite the U-shaped lower electrode. Thus, nothing in Yamada discloses or suggests a U-shaped electrode or a second capacitor dielectric that directly contacts a surface of the first capacitor dielectric layer opposite the U-shaped lower electrode as recited in Claim 1.

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Accordingly, none of the cited references either alone or in combination disclose or suggest many of the recitations of Claim 1 set out above. Furthermore, there is no motivation or suggestion to combine the cited references as suggested in the Final Office Action. As affirmed by the Court of Appeals for the Federal Circuit in *In re Sang-su Lee*, a factual question of motivation is material to patentability, and cannot be resolved on subjective belief and unknown authority. See *In re Sang-su Lee*, 277 F.3d 1338 (Fed. Cir. 2002). It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 312-13 (Fed. Cir. 1983).

The Final Office Action states:

It would have been obvious to a person of ordinary skill in the art at the time of invention to extend the second dielectric so as to be above the upper surface of a support layer and, therefore, be between the outer portion of the lower electrode and said first capacitor dielectric and directly contacting a surface of the first capacitor dielectric layer opposite the lower electrode as taught by Yamada in the device of Lee *et al.* to maintain the prescribed capacitance of the storage capacitor.

See Final Office Action, page 3 (emphasis added). This motivation is a motivation based on "subjective belief and unknown authority", the type of motivation that was rejected by the Federal Circuit in *In re Sang-su Lee*. In other words, the Final Office Action does not point to any specific portion of the cited references that would induce one of skill in the art to combine the cited references as suggested in the Final Office Action. If the motivation provided in the Final Office Action is adequate to sustain the Office's burden of motivation, then anything that would "maintain the prescribed capacitance of the storage capacitor" would render a combination obvious. This cannot be the case. Accordingly, the statement in the Final Office Action with respect to motivation does not adequately address the issue of motivation to combine as discussed in *In re Sang-su Lee*. Thus, it appears that the Final Office Action gains its alleged impetus or suggestion to combine the cited references by hindsight reasoning informed by Applicants' disclosure, which, as noted above, is an inappropriate basis for combining references.

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Furthermore, the nitride spacer 14c of Lee is recessed in the storage electrode 16 and, therefore, cannot be extended as suggested in the Final Office Action. Furthermore, even if the nitride spacer 14c could be extended, extending the nitride spacer 14c to between the electrode 16 and the dielectric 17 would change the functionality of the device and the layers thereof. Furthermore, even if Lee and Yamada could be properly combined, the combination of Lee and Yamada would teach a non-U-shaped capacitor structure having a second electrode that is isolated from the first electrode as discussed above with respect to Yamada. Accordingly, even if the cited referenced could be properly combined, the cited combination fails to teach a U-shaped electrode and a second capacitor dielectric layer that directly contacts a surface of the first capacitor dielectric layer opposite the U-shaped lower electrode as recited in Claim 1.

Accordingly, Applicants respectfully submit that independent Claims 1 and 8 are patentable over the cited combination for at least these reasons. Furthermore, the dependent claims are patentable at least per the patentability of the independent base claims from which they depend.

### CONCLUSION

Applicants submit that Claims 1-8 and 10-15 are in condition for allowance for at least the reasons discussed above. Favorable reconsideration of this application is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully Submitted,



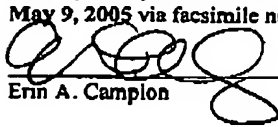
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